

Community Outcome: Sustainable Environment - *Kauneke Tauwhiro Taiao*



We manage our growth in a way that increases our sustainability and enables a healthy living environment. We are a leader in sustainable housing and building practices. We have access to good quality water and air and we manage our energy, waste and water innovatively and responsibly.

Related outcome areas

- Green Network - *He tuituitanga kakariki*
- Toiora - *Healthy lifestyles*
- Waiora - *Environmental protection*
- Urban and Rural Villages - *Nga kainga taone, tuawhenua*

Who are some of the key contributors to making this outcome happen?

| Who | How |
|---|---|
| Numerous community and school-based environmental organisations | • Organise and enable people to clean-up, remove pests, restore and take care of areas of land and water |
| EcoMatters Environment Trust and its contributing organisations | • A consortia of community-based trusts involved coordination, promotion and providing environmental improvement projects in Waitakere (Keep Waitakere Beautiful, Tag Out Trust and Weedfree Waitakere Trust) It also promotes and provides education in sustainable living |
| Auckland Regional Council | • Manage the region's air and water quality, its growth and development, regional parks, public transport, the coastal and marine environment, and natural and cultural heritage sites |
| Watercare | • Supply of bulk water to the region, operates the regional wastewater disposal network |
| Beacon | • Research of sustainable building technologies, construction industry practices, urban planning, policy and regulation as well as consumer understanding and needs |
| Department of Building and Housing | • Provides information and guidance on building law and compliance, services including weathertight homes, and advice for tenants and landlords |
| Development companies | • Development of sites for residential, commercial and industrial use with a commercial return to investors |
| Building Research Authority of New Zealand (BRANZ) | • Research, testing, consulting and information company providing resources for the building industry |
| Housing New Zealand | • Provides housing services for people in need. It is also the New Zealand Government's principal advisor on housing |
| Waste management and minimisation companies | • Provide recycling, composting, rubbish collection, waste disposal, landfill and transfer stations • Advocacy for waste minimisation initiatives |
| Energy Efficiency and Conservation Authority (EECA) | • Promotion and support for energy efficient initiatives and renewable energy |
| Power production and distribution companies | • Production and distribution of electricity |



"No more rubbish on Mother Nature is a change I'd like to see."

Frank, Glendene

What is being done to make this outcome happen?

While there are many agencies involved in working to achieve this community outcome, there are also some specific planned and completed initiatives.

| Community Outcome | Intent | Initiative | Details | Who |
|---|---|--|---|---------------------------------------|
| Sustainable Environment - <i>Kauneke Tauwhiro Taiao</i> | We are a leader in sustainable housing and building practices. | Eco design advisor | Free sustainable building advice to residents | Council / BRANZ |
| | | Waitakere Central building development | Showcases sustainable building practices through council building and eco initiatives | Council |
| | We manage our growth in a way that increases our sustainability and enables a healthy living environment | Water demand management initiatives | Aim to reduce domestic metered water consumption per capita | Council |
| | | Waitakere Ranges Heritage Area Bill | Enables protection of the unique environment | Council / ARC / RDC and Central Govt. |
| | We have access to good quality water and air and we manage our energy, waste and water innovatively and responsibly | Monitoring drinking water standards in Waitakere | Ensures quality water is supplied to residents in Waitakere | Watercare |



"I would like to see no more littering our streams."

Avishek, Glen Eden

Council contribution

The council has three strategic platforms that contribute to this outcome, The Three Waters, Zero Waste and Sustainable Energy and Clean Air.

The platform visions are:

Waitakere takes an innovative approach to managing drinking water supply, wastewater and stormwater together, under the heading of The Three Waters.

Waitakere's Zero Waste strategy will produce a clean and attractive city that increasingly turns its waste into resources.

Waitakere City's energy and emissions to air management demonstrates ongoing progress towards a sustainable society.



Electricity generated by the wind turbine on the council's main building is used on site.

Some examples:

| Platform | Intent | Initiative | Details | Who |
|----------------------------------|-----------------------------|-----------------------------------|--|---------------------------------------|
| Three Waters | Innovative water management | Reduction in use of potable water | Fixing leaks, promoting water saving devices and appliances | EcoWater |
| | | Wastewater network upgrades | Projects to reduce overflows and respond to growth | EcoWater |
| | | Stormwater quality development | Construction of range of traditional and evolving technologies | EcoWater |
| Zero Waste | Reduce waste to landfill | Waste-Not Fund | Fund new initiatives and pilot schemes | Strategy |
| | | Green waste composting | Composting plant operation | Solid Waste |
| | | Recycling collection | Collection of household material. Resource recovery centre development | Solid Waste |
| Sustainable Energy and Clean Air | Sustainable living | Wind turbine | Pilot turbine on Waitakere Central and solar panels at Massey Leisure Centre | Strategy |
| | | Solar water heating | No consent fees to encourage installation | Resource Management/ Consent Services |



"Waitakere is a bit more laid back than Auckland and I also appreciate that it is an eco city - well, most of the time!!"

Frances, Laingholm

Air Quality

- Waitakere's air quality meets national standards
- One exceedance of suspended particles (PM10) occurred in 2006

Having access to clean air was one of the key outcomes sought by the community. These indicators measure the quality of air in Waitakere. Suspended particles (PM10) are particulates suspended in the air with a diameter of less than 10 microns. Because they are so small in size, they may enter the lungs and damage respiratory tissues. The main source of PM10 in New Zealand is solid fuel burning for domestic home heating. In Waitakere vehicles, particularly diesel vehicles are also a key source of suspended particulates.

Annual levels of PM10 in Waitakere are lower than the allowed standard. However, the national standard was exceeded once in 1999 and twice in 2006.

● ▲ **Table 28: Number of exceedances and annual averages for PM10 ($\mu\text{g}\text{m}^{-3}$) in Waitakere (1999 to 2006)²⁷**

| Year | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-------------------------|------|------|------|------|------|------|------|------|
| Exceedances (Henderson) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Averages (Henderson) | 17 | 21 | 19 | 16 | 15 | 16 | 15 | 16 |
| Exceedances (Glen Eden) | - | - | - | - | - | - | - | 1 |
| Averages (Glen Eden) | - | - | - | - | - | - | - | 13 |

Source: Auckland Regional Council

Carbon Monoxide (CO) is a gas produced as a product of incomplete combustion. Motor vehicle emissions, domestic home heating, outdoor burning and industry are key sources of carbon monoxide. Carbon Monoxide can have negative health effects if exposure is excessive. These may include headaches, dizziness and nausea. The table shows that the eight hour average Carbon Monoxide level is lower than the national environmental standard over the period 2001 to 2006.

● ▲ **Table 29: Eight hour average CO ($\mu\text{g}\text{m}^{-3}$) in Waitakere (2001 to 2006)²⁸**

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-----------|------|------|------|------|------|------|
| Henderson | 5 | 3 | 3 | 4 | 4 | 3 |
| Glen Eden | - | - | - | - | - | 4 |

Source: Auckland Regional Council

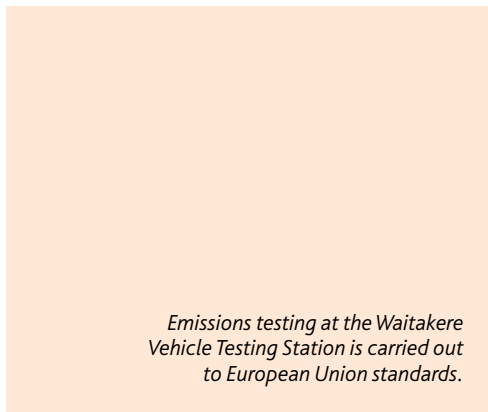
Nitrogen dioxide (NO_2) is a respiratory irritant that affects lung function. It can lower resistance to respiratory infections and may also increase reactivity to natural allergens. The main source of NO_2 in most urban environments is motor vehicle emissions, although burning of other fossil fuels (e.g. coal, gas and oil) will also produce NO_2 . Data on nitrogen dioxide began to be collected in 2003. Since recording began the national environmental standard has not been exceeded in Waitakere.

● ▲ **Table 30: One hour average nitrogen dioxide (NO_2) level ($\mu\text{g}\text{m}^{-3}$) in Waitakere (2001 to 2006)²⁹**

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-----------|------|------|------|------|------|------|
| Henderson | n/a | n/a | 93 | 83 | 98 | 90 |
| Glen Eden | - | - | - | - | - | 62 |

Source: Auckland Regional Council

While much of air quality monitoring focuses on the outdoors, people spend significant amounts of time indoors. The World Health Organisation recommends a minimum indoor temperature for health of 18°C, with up to 20-21°C for more vulnerable groups, such as older people and young children. Cold housing in New Zealand has been associated with avoidable excess winter mortality among people 65 or older (Isaacs and Dunn, 1993). This indicator outlines indoor air quality in Waitakere.



Emissions testing at the Waitakere Vehicle Testing Station is carried out to European Union standards.

No single measure of indoor air quality exists but various data sets can help build a picture of the quality of indoor air. We know that, according to the 2006 Census:

- Approximately 4% of dwellings do not use any fuels for their heating. It is likely therefore that such dwellings will not achieve the recommended air temperature of the WHO especially in winter.
- 39% of households use wood or coal to heat their dwellings and 32% used bottled gas. Inefficient burning of these materials can release Suspended Particulates (PM10) and Carbon Monoxide (CO). If burned in an open fire these materials may also release these chemicals indoors, where they will be more concentrated.
- Approximately 25,000 dwellings in Waitakere were built before 1978; this is approximately 40% of the total stock³⁰. A legislative requirement that all houses be insulated was passed in 1978.

Water quality

- **Drinking water in Waitakere is rated as Aa**

A continuous supply of high quality drinking water is a key contributor to ensuring public health is maintained. Access to good quality water was also an outcome sought by the community. This indicator measures the quality of our drinking water. Drinking water that comes via the network in Waitakere is graded as "Aa". The "A" means that the treatment plant from where water is sourced is "completely satisfactory, extremely low level of risk". The "a" means the reticulation network is completely satisfactory, extremely low level of risk". (Quality of Life, 2007).

Under the Drinking Water Standards local authorities are required to regularly test drinking water to demonstrate its quality and safety. *E. coli* compliance can be achieved by regular monitoring of the distribution zone (i.e. at the tap) to demonstrate that *E. coli* is not present in the water. In 2005, 99.9% of residents had water that complied.

Table 31: E. coli compliance by water distribution zone in 2005

| | Number of council tested water supplies | Number of council tested water supplies that complied | Water supplies that complied % | Population covered by water supplies that complied % |
|-----------|---|---|--------------------------------|--|
| Waitakere | 10 | 9 | 90.0 | 99.9 |

Source: *Quality of Life 2007, Environet Ltd*



The Waitakere water supply lake



"Changes that I would like to see are more development with modern infrastructure in the city, whilst keeping it as a nature reserve."

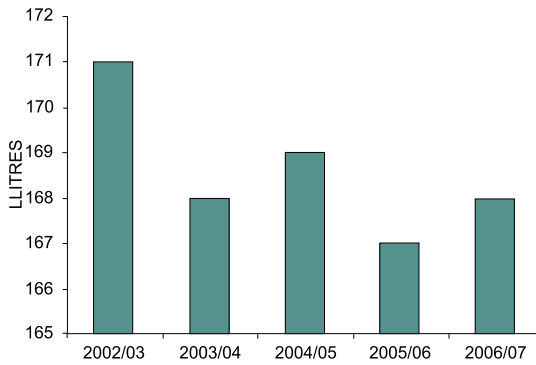
Michael, Henderson Valley

Residential water use

- **The average resident consumes around 166 litres of water per day**

Water is a key resource for all people. It is important that it is managed effectively in the city. This indicator measures domestic water consumption per person. Domestic water consumption per person declined since 2002/03 and has remained relatively constant at around 166 litres per person per day since. To achieve continued reductions in this figure we need to ensure that people consume domestic water in a responsible manner and use water savings technology, such as low flow showerheads and dual flush toilets.

Figure 30: Average domestic metered water use (litres) per person per day in Waitakere (2002/03 to 2006/07)



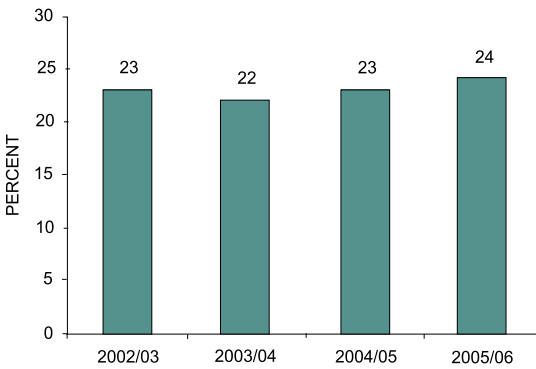
Source: Waitakere City Council

Solid waste and recycling

- **Around a quarter of waste delivered to the transfer station is reused, recycled, recovered or composted**
- **Residents produce around 120kgs of residential waste per person**

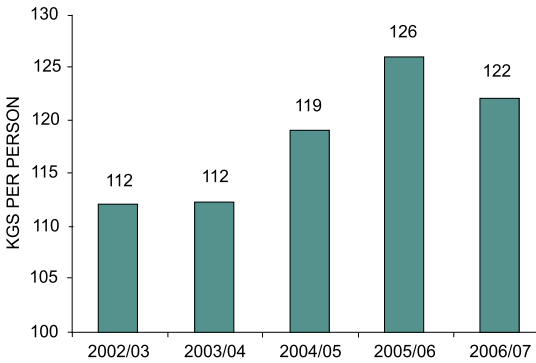
Households, through purchasing goods and services, generate considerable amounts of solid waste that must be disposed of. This waste can be difficult to recycle and may take many years to breakdown in landfills. This indicator measures the amount of waste that is reused, recycled, recovered or composted that enters the transfer station and how much residential waste is produced. Figure 31 shows that approximately one-fifth of waste is reused, recycled, recovered or composted. Figure 32 shows that per capita Waitakere residents have produced on average 118 kilograms of residential waste per person over the five year period.

Figure 31: Percentage of waste entering the transfer station that is diverted from landfill through reuse, recycling, recovery or composting initiatives (2002/03 to 2005/06).



Source: Waitakere City Council

Figure 32: Volume per capita of residential waste generated per person in Waitakere³¹ (2002/03 to 2006/07)



Source: Waitakere City Council



"I like that Waitakere is very proactive in painting over tagging."

Jordan, Ranui.